IUD
Real risks or misconceptions?

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No conflict of interest
Mechanism of action

- Inflammatory reaction in the uterus with a significant increase in concentration of macrophages, prostaglandins, leucocytes and others enzymes.

- Toxic effect on sperm, and egg and interfere with sperm transport

- Probably the effects on endometrium prevent implantation
Excellent effectiveness
WHO. Criteria of eligibility 2009

- Copper IUD or LN- IUD
  Over the first year, less than 1 pregnancy per 100 women (6 to 8 per 1000 women)

- Over 10 years of copper IUD use: 2 pregnancies per 100 women

- Over 5 years of LNG-IUD use: less than 1 pregnancy per 100 women (5 to 8 per 1000 women)

- In case of pregnancy
  - Remove the IUD if strings visible (20% of miscarriage)
  - Spontaneous miscarriage 48 to 75%
No real risk but conditional risk

<table>
<thead>
<tr>
<th>Risk of ectopic pregnancy without any contraception</th>
<th>Risk of ectopic pregnancy with copper-IUD</th>
<th>Risk of ectopic pregnancy with a LNG-IUD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/150</td>
<td>1/2500</td>
<td>1/150</td>
</tr>
<tr>
<td></td>
<td></td>
<td>In a more recent study, no difference between copper and LNG-IUD</td>
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<tr>
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<td>FFPRHC Guidance (April 2004)</td>
</tr>
</tbody>
</table>
Fear and barriers

- Pelvic infection disease and the consequences on fertility

- For nulliparous, difficulties of insertion and bad tolerance
Ferguson 1992 (WHO)

22,908 women (51,399 of woman-years of exposure)

Prevalence of PID: 1.54 cases per 1000 wy, same as women without IUD

Incidence of PID 6 time more in the first 20 days after the insertion, then same, constant and low rate during the following 8 years.

The rate of PID was different from one country to another (high in Africa, low in Asia) depending of the IST prevalence.
Pelvic inflammatory disease (PID) and IUD

- 1996, Beerthuizen study comparing different contraception method

**PID Prevalence**: 1.38 per 1000 wy

More frequent:
- in the 20 days after the insertion: 9.66 per 1000 wy
- In the group of young women with multiple partners

- A study in 2012, including 57 728 IUD insertion does not find the increase of risk after the insertion when women have low risk of STI

Pelvic inflammatory disease (PID) and IUD

In a retrospective cohort of 90,489 women with an IUD (copper and LNG) looking on complication regarding age::

- Serious complications (ectopic pregnancy, PID) are found in less than 1% regardless the age and the type of IUD

- The 15-19 group has more:
  - dysmenorrhea (RR=1.4 [CI 1.1–1.6])
  - amenorrhea (RR =1.3, CI 1.1–1.5),
  - normal pregnancies( RR =1.4 [CI] 1.4–1.8)

Pelvic inflammatory disease (PID) and IUD

A retrospective study including more than 2500 women 13 à 35 years old found out that the cervicite rate is correlated with age (13% in the youngest group), the PID risk is low (2%) and not correlated with age

Aoun J et al. IUD effects of age, parity, and device type on complications and discontinuation of intrauterine devices. Obstet Gynecol 2014
Impact on fertility (tubal sterility)

- No recent and good methodology studies (only case–control studies)

- Contradictories results:
  2 studies found out a weak or limit link between tubal infertility and IUD
  4 studies: no link

Return delay of fertility

6 cohort surveys conclude that fertility comes back in

- 72 to 92% in the year after the removal of the IUD

- 92 to 100%, 2 years after the removal.

- Pregnancy rate is the same regardless of the contraceptive method used, for nulliparous as well as for the multiparous
Return delay of fertility

- Comparison of the fertility after stopping different contraception method (Vessey, 83, Doll 2001)
  - Time to onset a pregnancy same for IUD and CO
  - Shorter after barriers methods
  But 36 months after, the pregnancy rate is the same for all methods

- Meta analysis in 2008 (Skjeldestad) conclude that after an IUD removal,
  - the time to onset a pregnancy, the preterm rate, the infant weight, the sex ratio
  are exactly the same after an IUD than in the general population
  - Same management of infertility
Systématic screening before IUD insertion of STI (Chlamidiae, Gonorrhea)

- Mohllajee et al., 2006: Increase risk of PID in the group who carries STI (Chlamydia et gonorrhea)
  0-5% vs 0-2% low rate anyway

- Sufrin et al.: 57,000 femmes, 2012:
  - After one year, no difference on occurrence of PID between the group with or without screening
  - No difference in the group less than 26 years old

- Wang, 2014:
  No difference on occurrence of PID between the group screened with STI and the group without STI IUD inserted as EC same day as the screening (résultat).
Systematic screening of STI (Chlamidia, Gonorrhea) before IUD insertion

Recommendation

- Without symptoms and
- Without risk factors (<26 years old, new partner, more than 1 partner the past 12 months, history of STI)

No systematic screening is recommended before IUD inse

IUD is not a risk factor of infection

For WHO, even in case of excess STI risk, benefits outweigh the risks. The majority of high risk women will not have infection.
Systematic screening of other agents than Chlamidiae et gonorrhea (including genital mycoplasmas, both aerobic and anaerobic endogenous vaginal flora, and aerobic streptococcus).

- Not enough current evidence is available to support routine screening for bacterial vaginosis at the time of insertion in asymptomatic women. (WHO and Canadian guidelines)

- *Actinomyces israelii* (commensal of vaginal flora) found in 7% of pap test in women with IUD. Give very rare but serious infection (tubo ovarian abscess).
  - Asymptomatic: No Antibiotic and IUD left
  - Symptomatic: removal of IUD and AB


Serfaty D. Conduite à tenir chez les utilisatrices de dispositifs intra-utérins (DIU) ayant des frottis cervicaux de dépistage positifs pour actinomyces. Mises à jour en GynécologieMédicale. Vigot 2008
Screening for infection

- All women requesting an intrauterine device should be screened by both history and physical examination for their risk of sexually transmitted infection.

- Women at increased risk should be tested prior to or at the time of insertion;

- however, it is not necessary to delay insertion until results are returned.
Antibiotic prophylaxis before insertion

Consensus: NO ANTIBIOTICS PROPHYLAXIS

- 1999, Métà-analysis
  No significant difference in occurrence of PID with or without AB

- 2010, Grimes, Cochrane
  Same result

- 2012 CNGOF
  Recommendation: No Antibioprophylaxy

In a retrospective cohort of 90,489 women with an IUD between 2002 and 2009

- Continuation rate are less good in 15/19 years old girls compared to 24/44 years for copper-IUD but is better than for any other contraception

- Same continuation rate in the 15/19 years old group versus the 24/44 group for the LNG-IUD.

- Dysmenorrhea more frequent in the group 15/19 (OR: 1.3 compared to the 20/24)
Inserting the IUD

- Simplifying insertion:
  - No need an hysterometry. It is done when we insert the device
  - No need (sometimes) Pozzi tenaculum when cervix open

- Expulsion (2 to 7 p 100 women years)

- Vidéo [http://www.steriletmonalisa.com](http://www.steriletmonalisa.com)  
  Identifiant : Stérilet  
  Mdp : monalisa  
Méthode « de la torpille » ou de Bonneau-Cristalli
Failed IUD insertion

- **Failed IUD insertion** (Few data)


Survey on 198 women with a T380 inserted in emergency contraception by seniors providers

27/138 (19%) failed IUD insertion on nulliparous
8/59  (13%) on multiparous

- **Pain and vaso-vagal reaction after the insertion**

Frequent (no data)

NSAI helpful for the hours after the insertion
Misoprostol before the inserting?

Contradictory studies

Pros:

- Sääv, A. Aronsson, and all. Cervical priming with sublingual misoprostol prior to insertion of an intrauterine device in nulliparous women: a randomized controlled trial; Hum. Reprod. 2007


Cons:


- Lathrop E, Haddad L, McWhorter CP, Goedken P. Self-administration of misoprostol prior to intrauterine device insertion among nulliparous women: a randomized controlled trial. Contraception. 2013
Which IUD?

Menstruations or not menstruations?

- **Copper-IUD**
  - Changes in bleeding patterns +/-
    - More prolonged and heavy menstruation
    - More dysmenorrhea

- **Levonorgestrel-IUD**
  - Changes in bleeding patterns
    - Amenorrhea 20%
    - Spotting 20%
Bleeding patterns for LNG-IUD
20 % of amenorrhea
<table>
<thead>
<tr>
<th>Situation</th>
<th>Insertion Timing</th>
</tr>
</thead>
</table>
| **Having menstrual cycles** | - The first 12 days of the cycle   
|                            | - Anytime if it is reasonably certain she is not pregnant (no sex since LMP)   |
| **Switching for an hormonal method** | - Any time if she takes correctly pills, ring, patch   
|                            | - Any time if she had an injectable since less than 3 months   
|                            | - Anytime if she has an implant (can be removed the same day) |
| **Changing for a new IUD**  | - Anytime. Removal and insert the IUD the same day                               |
| **Post partum**            | - 4 to 6 weeks after normal delivery or C-section                                |
| **Post abortum**           | - The day of the surgical procedure   
|                            | - When the uterus is empty after a medical abortion                              |
Removal or Switching from IUD to another method

<table>
<thead>
<tr>
<th>She wants a child</th>
<th>She does not want a child</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any time</td>
<td>Not after the 7 first days of the cycle</td>
</tr>
<tr>
<td></td>
<td>Need protected sex immediately after removal</td>
</tr>
</tbody>
</table>

**To switch to an hormonal method**

<table>
<thead>
<tr>
<th>If she is at the first 5 days of the cycle</th>
<th>IUD can be removed and Hormonal contraception can be started</th>
</tr>
</thead>
<tbody>
<tr>
<td>If she is after the first 5 days of the cycle and had sex less than 5 days before</td>
<td>Start hormonal contraception, wait 7 days then remove the IUD</td>
</tr>
</tbody>
</table>
Missing strings

- Check for the strings in the cervical canal with a little forceps (more than 50% of missing strings)
- Check with Ultrasound if not found in the cervical canal
- If it is in the uterus, removal can be done under ultrasound supervision
- In rare cases, hysperoscopy is needed.
How many often do we need to change an IUD?

<table>
<thead>
<tr>
<th>Labeled duration</th>
<th>Wu, 2014 but data only for women more than 25 years old</th>
</tr>
</thead>
<tbody>
<tr>
<td>• T380</td>
<td>10 years, 12 years</td>
</tr>
<tr>
<td>• ML380</td>
<td>5 years, 5 years</td>
</tr>
<tr>
<td>• LNG-IUD Mirena</td>
<td>5 years, 7 years</td>
</tr>
<tr>
<td>• Jaydess</td>
<td>3 years, No data</td>
</tr>
</tbody>
</table>

After 35 years old

No need to be changed until menopause (WHO, 2009)
IUD Complications

- **Perforation** (0.67 to 3.37 per 1000 insertion)

- Secondary migration
  - Spontaneous migration with contractions
  - Myometrial perforation at insertion then secondary migration
Risk factors of perforation

- Post partum (55% post partum < 6 mois in Finnish data)
- Breast finding (32% in Finnish data*)
- Retroverted uterus

No difference regardless
- the type of IUD
- Age
- post abortum

**Provider experience**

Prospective survey in New Zéland
17 469 copper-IUD inserted between 1991 and 2011

<table>
<thead>
<tr>
<th>Insertions /docteur</th>
<th>Nombre d’insertions</th>
<th>Nombre de perforations</th>
<th>Taux de perforation (p 1000 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 9</td>
<td>3634</td>
<td>11</td>
<td>3.0</td>
</tr>
<tr>
<td>10 - 49</td>
<td>8297</td>
<td>11</td>
<td>1.3</td>
</tr>
<tr>
<td>50 - 99</td>
<td>2402</td>
<td>1</td>
<td>0.4</td>
</tr>
<tr>
<td>&gt; 100</td>
<td>2982</td>
<td>5</td>
<td>1.7</td>
</tr>
</tbody>
</table>

Harrison-Woolrych M et al. Uterine perforation on intrauterine device insertion: is the incidence higher than previously reported? Contraception. 2003 Jan;67(1):53-6
Symptoms and management of perforation

- Asymptomatic, non visible strings
- Pregnancy
- Pelvic pain
- Exceptional symptoms linked to perforation of bladder or bowel

Management:

Laparoscopy or laparotomy

Can be left if asymptomatic

LNG-IUD has to be removed if the women wants a pregnancy
<table>
<thead>
<tr>
<th>Localisation du DIU N</th>
<th>Adhérences N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epiplooon</td>
<td>44/68</td>
</tr>
<tr>
<td></td>
<td>15/68</td>
</tr>
<tr>
<td>Cds de Douglas</td>
<td>10/68</td>
</tr>
<tr>
<td></td>
<td>2/68</td>
</tr>
<tr>
<td>Près des ovaires</td>
<td>13 /68</td>
</tr>
<tr>
<td></td>
<td>3/68</td>
</tr>
<tr>
<td>Cds vésico utérin</td>
<td>1/68</td>
</tr>
<tr>
<td></td>
<td>1/68</td>
</tr>
</tbody>
</table>

Kaislasuo J et al. Uterine perforation caused by intrauterine devices: clinical course and treatment
Hum Reprod 2013 Jun;28(6):1546-51
When IUD is in the uterus but not in a good position (10%)

Mirena IUD in lower uterine segment

Management

- Removal if symptoms
- If asymptomatic, few data
- If in lower uterus segment, can be left
  If in the cervix, removal
  Can be pushed (no data)
- For LNG-IUD, no difference in pregnancy rate
  whatever the position is.
  For copper IUD: no data
- When pregnancy: difficult to know if the pregnancy
  is linked to the position or if the position is the
  consequence of the pregnancy
Is Ultrasound helpful to insert IUD?

- Reassuring but not recommended when insertion goes easily

- At the follow up visit?
The value of transvaginal ultrasound to monitor the position of an intrauterine device after insertion. A technology assessment study

<table>
<thead>
<tr>
<th></th>
<th>Position inadéquate selon l’ échographie</th>
<th>Position correcte selon l’ échographie</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position inadéquate selon l’ examen clinique</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Position correcte selon l’ examen clinique</td>
<td>3</td>
<td>173</td>
</tr>
</tbody>
</table>

à 6 semaines

<table>
<thead>
<tr>
<th></th>
<th>Position inadéquate selon l’ échographie</th>
<th>Position correcte selon l’ échographie</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position inadéquate selon l’ examen clinique</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Position correcte selon l’ examen clinique</td>
<td>0</td>
<td>160</td>
</tr>
</tbody>
</table>

Conclusion

- IUD is not a risk factor of infection and infertility and complications are rare
- Use of IUD is recommended regardless age or parity.
- Long acting contraception is very effective to prevent unwanted pregnancy specially for young and very fertile women

<table>
<thead>
<tr>
<th>Type of contraception</th>
<th>Pregnancy rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group Pill, ring, patch, injectables &lt; 21 years</strong></td>
<td>4,55 per 100 women in one year</td>
</tr>
<tr>
<td></td>
<td>8 pour 100 women in one year</td>
</tr>
<tr>
<td><strong>Group LARC (implant, IUD)</strong></td>
<td><strong>0,27 per 100 women in one year</strong></td>
</tr>
</tbody>
</table>

Effectiveness of Long-Acting Reversible Contraception (LARC) Brooke Winner, M.D., Jeffrey Fand all ; N Engl J Med 2012